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ABSTRACT

Some of the ways in which colleges can work with high schools to enrich secondary school experiences and increase access to and success in higher education, are described, and an essay on successful cooperative activities is presented. In "Pieces and Parts," James Herbert notes efforts to improve the preparation of students for college by clarifying knowledge and skills needed by college entrants. Other efforts include programs to attract students and enrich precollegiate education, inservice programs for high school teachers, and collaboration in curriculum development. The following cooperative programs are described: The School-College Articulation Program, Kenyon College, Ohio; Yale-New Haven Teachers Institute, Yale University, Connecticut; educational offerings for high school students at Simon's Rock of Bard College, Massachusetts; a program placing minority high school students with established researchers at The University of Michigan, Ann Arbor; The Seattle University/Seattle Preparatory School, Washington State; a writing program and an academic enrichment program for high school students at Georgetown University, District of Columbia; and an outreach program to high school instructors by Brooklyn College, New York City. Seven additional programs and information on resources are also described. (SW)

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Cooperative Activities Between High Schools and Colleges

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Cooperative Activities Between High Schools and Colleges

This issue examines some of the ways in which colleges and universities can work with high schools in enriching students' secondary school experiences, increasing access to higher education, and improving chances for collegiate success. Activities range from a program at the University of Michigan which places promising minority high school students with established researchers to Brooklyn College's outreach to instructors in every department at a local high school. Also included are Matteo Ricci College and Simon's Rock of Bard College, two especially innovative college programs for high school-aged students. In the following essay, James Herbert provides insights on how to establish successful cooperative activities.

Pieces and Parts

by James Herbert
Director of Academic Relations
The College Board

One of my favorite movies, *Jonah Who Will Be 25 In The Year 2000*, contains an arresting classroom scene. A history teacher extracts from his satchel first a metronome, then a meat cleaver which clatters onto the desk, and finally yards and yards of a seemingly endless sausage. Then, as the metronome ticks off regular intervals, the teacher takes the cleaver to the sausage, dividing it into distinct and manageable lengths. Walking around the classroom, his arms piled with pieces of sausage, the history teacher quizzes his startled students: "Here are the units of history. What shall we call them? Epochs? Centuries? Years?"

The teacher was emphasizing, of course, that human history is a continuous process and that it is divided into separate pieces only in an abstract, intellectual act. The scene in the movie fades before the history teacher has to make the equally important point that understanding involves not just analysis but synthesis—putting the parts back together again, discovering how they relate. Perhaps that is just as well. Unlike abstractions, sausages are difficult to put back together again.

Today's flowering of cooperative ventures between high schools and colleges grows out of the fact that both types of institutions are parts of the same educational process. Toward the beginning of this century we chopped that process into pieces, including *high* schools and *higher* education. More like history than the sausage, however, those pieces were still parts of a whole. Students moved from high schools to colleges. Teachers and knowledge moved from higher education to secondary schools. Cooperative ventures between high schools and colleges are important today because both partners are hurt by difficulties arising outside their own organizational boundaries. The links of this particular sausage are still related.

Many American colleges find themselves in a painful dilemma. On the one hand, professors report that increasing numbers of students are not adequately prepared for college-level study. On the other hand, directors of admissions face the even more brutal fact that the number of potential college students is expected to decline for many years to come. Inade-

quately prepared students further complicate an institution's enrollment difficulties by often leaving college long before completing a degree. Moreover, while in college they divert scarce college resources into the costly and uncongenial work of remediation. Under these circumstances, colleges have a clear interest in increasing the proportion of high school graduates who are adequately prepared for college work.

The initial step toward improving the preparation of students for college is to clarify precisely what college entrants need to know and be able to do. In the foreword to a new Carnegie Foundation volume, *School and College: Partnerships in Education*, Foundation President Ernest L. Boyer emphasizes that "first, high schools and colleges should join together to determine the content and specific skills considered essential requirements for entrance to college." This effort should be conducted at both the national and the local level. For several years the College Board's Educational EQuality Project has been carrying out a nationwide consultation to identify and describe the basic academic competencies and subjects needed for success in college. Once published, such generally framed descriptions can become a reference point for discussions in which colleges and the high schools from which their students come define specific expectations and goals for college entrants.

These discussions will require a serious commitment to mutual understanding. In the course of EQuality's deliberations, a group of mathematicians reported that college entrants expecting to major in scientific fields would need "understanding of and ability to use simulation techniques to model experimental situations; knowledge of experimental aspects of probability theory needed in the study and understanding of statistics." Shocked high school teachers wondered if the mathematicians were talking about real, ordinary, seventeen-year-old high school graduates. Upon further discussion the groups discovered that what the mathematicians actually meant was somewhat less intimidating: "Understanding of simulation techniques used to model experimental situation; knowledge of elementary concepts of probability needed in the study and understanding of statistics." The college professors naturally described their subject in more complex, theoretical terms, the high school teachers in more practical, operational ones. By carefully working together, the two groups were able to build an exact and useful intellectual bridge.

A convincing clarity and precision about what college entrants need to know and be able to do will help high school students make better course choices in preparing for college. It will also reinforce the efforts of high school guidance counselors and others to persuade them to undertake serious, challenging work. It may even provide persuasive arguments to school boards and others who set overall policy and allocate resources to the high schools.

Restoring Cooperation

But colleges will not increase the supply of well-prepared students by unilaterally translating such definitions of adequate preparation into new entrance requirements. Taken in a vacuum, such actions will simply raise the dam when the river is already receding. What the nation needs and what individual colleges need, is a greater flow of well-prepared students from the high schools to the colleges. Making college entrance requirements more stringent without enhancing students' ability to meet those requirements would not only be self-defeating, it also would be a particular injustice to those who are already deprived of adequate preparation for college. An effective—and fair—solution to the problem requires that colleges look further upstream in the educational process.

Many colleges have begun to offer programs for high school students. The school/college articulation program of Kenyon College enables six private colleges to offer courses leading to college credit. In North Carolina, Guilford College's "Month of Sundays" program provides short, engaging, sharply focused courses for promising high school students.

Programs to attract and enrich the pre-collegiate education of well-prepared students will not, however, increase the number of such students. To do so, colleges must work with those directly responsible for pre-college education: high school teachers. Today, higher education's traditional role in preparing school teachers has been complicated by a new wrinkle. The rate at which new teachers are entering the high schools is on the decline. Improving the education of high school students will, for the most part, be in the hands of those who are presently teaching. Rather than the traditional emphasis on training new teachers, colleges in most cases will focus their attention more profitably on in-service work with current teachers. Since these teachers are already professionally settled, colleges will be most effective in working with them when they can approach high school teachers as professional peers, as fellow teachers.

In the related area of curriculum development we are also older and wiser. Twenty-five years ago, in the great burst of post-Sputnik educational improvement, adventurous new curricula were drafted largely by college professors and then exported to the high schools. Unfortunately, these curricula sometimes failed to take the real-life learning circumstances of high school students into account. Today we know that strengthening the high school curriculum requires not only subject matter expertise but also understanding how things actually work in the high school classroom. Here is a sound professional basis for genuine cooperation between high school and college teachers.

Colleges should appreciate, however, that high schools can be suspicious of collaboration with higher education. In the past, such initiatives sometimes have turned out to be irritants and impositions, short-term "hit and run" raids, additional examples of higher education's arrogance in dealing with "lower education." Colleges that have traditionally valued and rewarded teaching will be particularly creditable and effective when they join with high schools to strengthen teaching and learning.

The Yale-New Haven Teachers Institute, described later in this issue, is an exemplary attempt to allay such suspicions and restore an appreciation of the common educational process. In the first place, the institute is a *cooperative* enterprise. Yale professors organize seminars for New Haven teachers, but those seminars are built

around curriculum topics identified by the middle and high school teachers themselves.

Second, Yale's efforts are designed to be *practical*. They focus only on teachers in the New Haven public middle and high schools, a limited group for which the resources of the university can be a genuine asset. In addition, the seminar products are not research papers but curriculum units for use in the teachers' own classrooms.

Finally, the institute is being structured as a permanent relationship. James R. Vivian, director of the institute, writes that "we know that the impact of the institute will be roughly proportional to the number of teachers who participate on a recurring basis." Between 1978 and 1982 about 40 percent of the New Haven science and mathematics teachers successfully completed at least one year in the institute; more than 90 percent intend to participate again. Yale is also seeking a $4 million endowment to put the institute on a permanent basis.

Not all colleges have Yale's special faculty and ability to raise funds. But all colleges can reach across organizational boundaries to collaborate with high schools in solving a common problem: the scarcity of adequately prepared college entrants. In doing so they will also affirm higher education's long-neglected mission of community service. They may even renew appreciation for their partners in the educational process.

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Kenyon College

School-College Articulation Program

During the past three years more than 700 high school students have received college credit in a program sponsored by Kenyon College and six private Ohio secondary schools. Called the School-College Articulation Program (SCAP), the project features introductory Kenyon course taught by high school instructors at the private schools. Specific procedures for teacher selection and development guarantee the standards necessary to certify the courses for Kenyon credit, says Joan Straumanis, associate provost. Straumanis, who is also a professor of philosophy, lists SCAP's goals as introducing students to college-level work in the comfortable, familiar environment of their friends and teachers and reducing the amount of course duplication between 12th grade and the first year of college.

Cooperative activities began when the six schools joined together to ask Kenyon College, which they knew was a long-time advocate of advanced placement, to award college credit for some of their courses. "They believed their courses were college-level and that their faculty members were well-qualified to teach them," says Straumanis. "We turned that around and said we would only give credit if we controlled the quality." With funding from the George Gund and Martha Holden Jennings Foundations, staff members at the college and the six schools, five outside Cleveland and one near Toledo, developed SCAP.

Straumanis lists teacher selection as the first step in controlling quality. Headmasters recommend teachers whose vitas are then reviewed by Kenyon faculty members in their disciplines. Administrators apply similar standards in selecting students. Participants must be seniors in the top 50 percent of their class or juniors in the top 25 percent. They must receive a high school instructor's recommendation and be accepted by both the college and the appropriate department.

Another quality control is ensuring that the high school courses are the equivalent of their Kenyon counterparts. Faculty members supervise the instructors who are teaching their courses. They conduct summer workshops for the instructors to review the course syllabus and discuss pedagogical approaches. In addition, the teachers attend an annual convocation which includes disciplinary meetings.

During the academic year each faculty member visits the secondary schools to observe their instructors and teach a class. At least once during the semester the high school classes visit the Kenyon class. For example, the high school French class recently saw a film on campus and discussed it with the Kenyon French class. Faculty members and instructors also exchange examinations and writing assignments to determine whether the same grading standards are being applied.

The one difference between the courses, according to Straumanis, is the amount of class time. Secondary school students usually attend classes every day, while the Kenyon courses meet only three times a week. In addition, some semester-long courses extend over the entire academic year at the high schools.

SCAP Courses

Current SCAP offerings range from philosophy and political science to statistics and physics. Each secondary school offers from one to four of the 11 available courses. The average course enrollment is 17 students.

Literature and Language, which surveys major literary genres, is one of the most popular courses. Other courses include American Economic History, which introduces economic principles in its examination of U.S. economic development, and Western Society Since the Seventeenth Century, a European history course which uses such texts as *Origins of Species*, the *Communist Manifesto*, and *Civilization and its Discontents*.

Straumanis is especially proud of the art course Color/Design. Based on the methods developed by Bauhaus artist Josef Albers at Black Mountain College and Yale University, the course follows a specific set of exercises in developing students' sense of color and design. Albers' *Interaction of Color* is the textbook.

Administrators base their SCAP course selections on three factors, according to Straumanis. First, a Kenyon College department or faculty member must be interested in coordinating the course. Second, the schools must be equipped to offer the course. For example, introductory chemistry is not a SCAP course because none of the schools has the necessary laboratory equipment. The third factor is the expertise of the cooperating teacher. While the usual pattern is to offer an established Kenyon course at the high schools, an instructor recently was

able to interest the head of the Kenyon Spanish department in developing a Hispanic literature course that could be taught both at the college and through SCAP.

Straumanis is pleased with students' reaction to SCAP. "They feel their courses are exciting and demanding and have given them a taste of college," says Straumanis, who notes that the SCAP courses count toward high school graduation requirements. She is disappointed that some colleges have not accepted credits earned through SCAP. Although students' grades are reported on a Kenyon transcript, some colleges will only accept credit for courses taught by a college faculty member for college students.

A recent evaluation by the college's Academic Policy Committee stated, "Clearly (SCAP courses) are somewhat different from the parent Kenyon courses. The reading or course material usually varies somewhat and the teaching style of the faculty must be adjusted to the maturity and sophistication of younger students. . . . In some SCAP courses less material is covered than in the equivalent Kenyon course and in others a full year is devoted to a course which receives only one-half unit of Kenyon credit." Despite these reservations, the committee recommended approving SCAP for another three years. Says Straumanis, "Some people have expressed reservations about whether the program does any good for Kenyon but no one questions the quality of the courses or whether they are worthy of Kenyon credit."

Straumanis discovered that high school instructors appreciate the opportunities to discuss teaching methods and meet with colleagues from their disciplines. Participating Kenyon faculty members report that their own freshman courses have improved as they reexamine methodologies and gain a greater understanding of high school programs.

Straumanis believes public service must be the overriding motive for programs such as SCAP. "You are going to be disappointed if you go into it for the monetary awards," she says. "I don't see any admissions benefit and you spend more than you earn. That doesn't mean it isn't worthwhile."

In fall 1983 Kenyon College administrators will begin a program similar to SCAP at the local public high school. Straumanis notes that the extension of the SCAP model to the public school has always been one of the program's goals. Some Kenyon faculty members had charged that SCAP was elitist and was helping the students who needed it the least. Straumanis acknowledges that the college wanted to test the program with instructors whom they felt were well-prepared and with schools who had approached them. In addition, the college and public high school had to negotiate different financial arrangements than those made with the private schools. Unlike Kenyon and the private schools, the school board will not contribute to operating costs, and public school students will pay $40 rather than the private school charge of $70 per course.

Straumanis emphasizes that the goals of the two programs are identical: helping students begin college-level work in the supportive atmosphere of their high schools. Forty students have registered for Color/Design and American History. Their instructors will participate in the summer workshops and convocation.

Kenyon faculty members also are discussing offering summer institutes to other secondary teachers as a means of disseminating what they have learned in SCAP. Straumanis is also interested in collaborating with nearby liberal arts colleges in SCAP-like programs because she feels Kenyon has reached its saturation point in the number of courses it can supervise.

Says Straumanis: "With these activities Kenyon, which is fairly isolated and self-contained, has strengthened ties with the community and reached out to people elsewhere. The benefits go beyond students in SCAP courses, they go to all the students of the participating teachers." *P.B.*

For more information, contact: Joan Straumanis, Associate Provost, Kenyon College, Gambier, OH 43022, 614/427-2244 or Richard D.S. Rickard, Director, SCAP, University School/Hunting Valley Campus, 2785 Som Center Road/Hunting Valley, Chagrin Falls, OH 44022. 216/831-2200.

Yale University

Yale-New Haven Teachers Institute

Since 1978 a joint effort by Yale University and the New Haven public schools has provided the opportunity for teachers to conduct indepth examinations of topics of mutual interest while learning how to present these topics in their classrooms. The heart of the program, called the Yale-New Haven Teachers Institute, is a set of intensive four-and-a-half month seminars conducted each year by Yale faculty members for sixth to twelth grade teachers in New Haven.

The collaborative program stems from Yale administrators' recognition that it is in their own self-interests to improve the academic preparation of their future students, says James R. Vivian, director of the institute. The institute follows a 1970 program in which faculty members in the history department helped local teachers improve their social studies courses.

Vivian describes the collaborative nature of the institute as essential to its success. "It is not something concocted by Yale for the schools," he says. "We look to the teachers to tell us how we can use the university resources to help them."

A reliance on teachers runs through all phases of the seminars. Teacher coordinators, representing each of the New Haven middle and high schools, meet weekly with Vivian over a four to five month period to discuss seminar topics. Coordinators canvas their peers to determine what topics they would like to see presented. They also help maintain institute standards and develop schedules which accommodate teachers' needs.

Once a seminar topic is selected, based on the interest of eight to twelve teachers, Vivian asks a faculty member with expertise in that subject to offer a seminar. Faculty members receive the same compensation they would receive for a summer course.

Teachers apply to the institute by submitting proposals for curriculum units related to the seminar topics in which they are interested. Vivian and the teacher

coordinators review the applications, with the assistance of school subject area advisers, to determine the units' potential placement in the school curriculum and their relationship to the seminar topics.

Each year 80 history, language, art, science, and mathematics teachers from nine middle schools and seven high schools participate in the institute. Since 1978, 40 percent of the New Haven secondary teachers have completed one institute and 20 percent have participated in more than one. Administrators designate teachers as Institute Fellows for one year and allow them to use the resources of the university. Fellows receive a $650 honorarium upon completion of the institute.

Each institute begins in March and runs through late July. Fellows attend sessions on preparation of curriculum units and the relationships between scholarship and teaching. Seminar groups meet weekly to discuss readings chosen from a bibliography prepared by the seminar leader, the progress of each fellow's curriculum unit, and teaching strategies and course activities. Vivian emphasizes that the seminars increase fellows' understanding of the topics and provide opportunities for developing new curriculum materials.

"By writing a curriculum unit, teachers think formally about the ways in which what they are learning can be applied to their own teaching," says Vivian. Fellows research their individual topics and prepare several drafts of the curriculum units, which must include course objectives, activities, and teaching methods.

Seminar Topics

Each year the institute coordinates seven to eight seminars whose topics reflect the fellows' varying interests. 1983 seminars include an examination of the cross-cultural variations in children and families, led by a psychology professor, and an American studies and history professor's discussion of the ideologies and politics of Americans in the 1960s. Other seminars will focus on classical mythology, medical technology, and architectural styles, especially as illustrated in the New Haven area.

Two 1982 seminars were Human Fetal Development and Society and Literature in Latin America. Fellows in the former seminar developed units on the prenatal period, environmental causes of birth defects, and the use of probability and statistics in heredity. Units prepared in the Latin American seminar included female stereotypes in Latin American literature, political development of Puerto Ricans in New Haven, and Puerto Rican myths, legends, and folktales. The institute distributes a brief description of each unit to all New Haven teachers, who can order the complete units.

Vivian attributes much of the institute's success to its philosophy of "having confidence in teachers at every turn in the conduct and development of our activities." He cautions people interested in establishing similar cooperative activities to examine the needs of their own educational environment before assuming the Yale-New Haven model is appropriate for them. In addition to stressing the importance of a teacher-centered program, Vivian lists three other guiding principles: "the fundamental importance of teacher-developed materials for effective learning, our insistence that teachers of students at different levels interact as colleagues, and our certainty that the university can assist in improving the public schools only if it makes a significant and long-term commitment to do so."

In addition, Vivian advises administrators not to view this type of program as a panacea for all problems in the secondary schools. "It is essential to blend hopefulness of the outcome of the university's involvement with the public schools with a realistic view of what is possible, practical, and manageable," says Vivian.

The institute's interest in cooperative activities extended to the national level in its cosponsorship of a February 1983 conference with the Carnegie Foundation for the Advancement of Teaching and the Council of Chief State School Officers. More than 100 state officers, foundation representatives, and college and university presidents gathered at Yale to discuss how the missions of higher education and elementary and secondary education are intertwined. Titled Excellence in Teaching: A Common Goal, the conference included presentations by education experts and descriptions of successful cooperative activities. Conference proceedings and a videotape of a panel led by Robert MacNeil of the MacNeil-Lehrer Report, which summarized the conference themes, are available from the institute.

Vivian also prepared a book on the institute for the conference. *Teaching in America: The Common Ground* includes a description of the institute, evaluation reports, essays by seminar leaders and fellows, and sample curriculum units. It is also available from the institute.

Vivian calls the teachers' response to the seminars the most gratifying and rewarding aspect of his involvement. "To participate in so demanding a program with limited personal rewards, teachers must believe it can assist them in their own teaching and that, by extension, it can eventually improve teaching and learning throughout the schools," he says. *P.B.*

For more information, contact: James R. Vivian, Director, Yale-New Haven Teachers Institute, 53 Wall St., P. O. Box 3563 Yale Station, Yale University, New Haven, CT 06520. 203/436-3316.

Simon's Rock of Bard College

A College for High School-Aged Students

Believing that many high school-aged students are ready for the intellectual challenges of college, educator Elizabeth Hall planned a liberal arts program that would respond to their academic competencies while recognizing their need for continued moral and social guidance. Founded in 1966, Simon's Rock has grown into a residential liberal arts college for high school-aged students with programs leading to the associate in arts and bachelor of arts degrees. In 1979 Simon's Rock became part of Bard College, located 50 miles away.

Three hundred students attend Simon's Rock each year. Their ages run from 15 to 20, with the average being 17. Most students enter after the tenth grade, earn associate degrees, and transfer, as juniors, to more traditional colleges to complete bachelor degrees.

Elizabeth Handelman, academic dean, characterizes the students as extremely well-motivated. "At their age no one is telling them to go to college," says Handelman. "It takes considerable initiative on their part to recognize that high school is not meeting their needs and convince their parents that they ought to go away to college." Handelman, who is also dean of the college and professor of physics, describes the application process as deliberately lengthy and involved to ensure that students are making the correct decision.

While Simon's Rock students have shown they are ready for serious learning, administrators recognize that they are still developing emotionally and socially. "They are not mature," says Handelman. "We don't treat them like children, but we recognize that they are learning how to deal with responsibility. The difference between Simon's Rock and the traditional college is that we have a lot more support around the students."

Support includes alert advisers both in and outside the classroom, an approach aided by the small student body. Faculty members also adjust their teaching styles by adding more structure to their courses, increasing personal contacts with individual students, and providing greater detail on course expectations."

Students entering Simon's Rock after the ninth grade complete a transitional studies year that is equivalent to a tenth grade honors program and does not qualify for college credit. Those who have completed the tenth or eleventh grade begin with three general education seminars. All students enroll in Historical Perspectives: Age of Revolution, which studies writings associated with personal and political freedom, and Moral Perspectives: Moral Challenge and Individual Commitment, which examines the philosophical concepts of morality. For their Cultural Perspectives seminar undergraduates may choose seminars focusing on Native Americans, Chinese civilization, Africa, world music, or French literature from Africa, Canada, and the Caribbean.

Additional associate in arts degree requirements include courses in English, mathematics, science, art, and foreign language. Students choose their remaining credits from a wide range of offerings available from the divisions of arts, humanities, foreign languages, natural sciences and mathematics, and social studies.

Students who decide to complete their baccalaureate degree at Simon's Rock choose one of seven interdisciplinary programs, including arts and aesthetics, intercultural studies, environmental studies, and quantitative studies. In addition to associate in arts and major requirements, students complete a writing tutorial and senior project or thesis. "An interdisciplinary approach is relevant to the real world, which is not broken down into traditional disciplines," says Handelman. "A high degree of specialty at the undergraduate level is not always in students' best interests at any age."

Writing Workshop

All new students must complete a six-day writing and thinking workshop, modeled after the three-week program at Bard College. The shortened version reflects the inclusion of much of the workshop's methodologies throughout students' first year at Simon's Rock, says Handelman. She describes the workshop as an effective tool for "getting students to see that they can write and the necessity of working on their writing to make their thoughts clear."

The workshop begins with a free-writing exercise in which students are asked to write whatever comes to their minds. "The idea," says Handelman, "is to keep your pen moving and get your thoughts down on paper." The workshop, led by Simon's Rock faculty members from various disciplines, is ungraded and nonjudgmental.

Students read poetry, essays, and short fiction and "discover that people have different perceptions and understandings," says Handelman. They write about the readings and work collaboratively to polish their writing. At the end of the workshop they have prepared the first draft of the essay which will be handed in as the first assignment in their English course. Students report that the workshop helps them develop strategies for preparing their papers.

Simon's Rock held its first writing workshop in August 1982. As a response to the enthusiastic reaction of a local school system representative who attended the workshop, a Simon's Rock instructor conducted training sessions on workshop techniques for local high school instructors. Faculty members will also conduct two-week summer training sessions for high school instructors from across the country. Handelman is inviting New England high school English teachers to an evaluation of the workshop in April 1983.

In addition to the applicability of the workshop techniques to high school and college settings, Handelman believes the Simon's Rock model can be established at a traditional college. She advises designing a small separate program for 12 to 15 younger students, with its own core courses and instructors. She stresses that explicit attention must be given to students' personal, as well as intellectual development. After two years in the early college program, students could transfer to the traditional courses. Handelman speculates that a similar non-residential program could be designed at urban universities.

"It's rewarding to get a student at a very impressionable age and know that it is possible to make some very important differences in their lives," says Handelman. "We get them before they become jaded and we see something terrific happen to them." *P.B.*

For more information, contact: Eileen T. Handelman, Academic Dean, Simon's Rock of Bard College, Great Barrington, MA 01230. 413/528-0771.

The University of Michigan

Promoting Success

In a program designed to involve high school students in the demands and rewards of scholarly research, University of Michigan faculty members are working with promising teenagers from four Detroit high schools. Students spend weekends and summers on campus serving as research assistants in faculty members' laboratories and offices. Projects in the Program in Scholarly Research for Urban/Minority High School Stu-

dents have ranged from interviews with black musicians to tests of arsine decomposition.

"We want to emphasize to students that in order to succeed they must work hard," says B. J. Evans, a professor of chemistry who directs the program. "We introduce them to something that they've never seen before and show them they can learn the material if they work hard enough."

Evans began the program in 1981 after feeling frustrated by unsuccessful efforts to help outstanding freshman from urban areas adjust to college level work. He decided that the faculty members needed to reach out to these students before they came to the university. In 1981 he invited ten students from Renaissance High School to participate. Renaissance is a five-year-old competitively selective high school which has a disproportionate number of students from the relatively high socio-economic community, according to Evans. He believed that if the program was not successful with Renaissance students then it could not succeed with any students.

Pleased with the program's first year, Evans expanded it to three other high schools in 1982. He characterizes their students as being more representative of the Detroit population. "I don't believe students' talents are determined by their families' incomes," says Evans. "I am particularly concerned with the economically disadvantaged student and those with low, traditional indicators of college success."

Each year's activities begin with Evans choosing faculty members to sponsor high school students. He selects faculty members who are active, publishing researchers. "I look for faculty members who put in ten to twelve hour days and are willing to tell a student when they are not working hard enough," says Evans.

In early spring, Evans and the faculty research advisers visit the high schools to make brief presentations of their ongoing research to students identified by the high school teachers as potential participants. Students talk with advisers and make preliminary selections of those they would like to work with. They then visit the university campus and participate in final interviews with the researchers. After Evans has matched a student with an adviser the research project can begin. During the spring students travel to the university on weekends and school holidays to begin the necessary background reading and work on their experiments.

During the summer students participate in the bulk of their research projects. They live in campus residence halls and work a full day in the laboratories. In weekly evening seminars the students take turns presenting research results. The researchers help students develop their self-confidence, research abilities, and patterns for future success, according to Evans. On several occasions, students have stayed in faculty members' homes in order to continue their research after the residence halls have closed for the summer.

Evans characterizes the research as graduate level work. He says the problems may be shorter than those given to doctoral students but do not differ much from master's degree research projects.

"The schools help us screen out the students who might not have the intellectual discipline to stick with the projects," says Evans. "We treat the students the same way we treat graduate students; we work closely with them in the beginning and, as they progress, give them more independent responsibilities."

Research Topics

Many of the research projects involve the physical and biological sciences, although some are humanities and social science-related. Evans discovered that the work habits of humanists do not lend themselves to the intense interaction that the students need.

During 1982, 28 students assisted with 21 faculty members' research activities. In some cases, several students worked with one researcher. For example, a professor of law supervised four students who developed variations of the mathematics game EQUATIONS, which are being field tested in high school algebra classes during the 1982-83 school year. In a project sponsored by a professor of music, two students interviewed elderly black musicians and developed skills in interviewing, using videotape equipment, and editing transcripts.

Another project, sponsored by an associate professor of cardiology, examined hypertension in rats. The students learned how to keep a rat alive during an operation while taking cardiac measurements. Students also examined the variables associated with black students' college success and the influence of 17th-century European culture on German organ music. In another project a student examined how a person's appearance and speech can alter others' conception of his potential job competence.

Evans extends the program's similarity to graduate level work by requiring students to make research presentations comparable to those given at professional and scholarly meetings. In February 1983, 19 students presented their research findings in a symposium attended by 250 faculty members, school and community representatives, and parents. Evans was pleased with the presentations and says that all the students did better than he had expected, based on their performances at an earlier practice session and in the summer seminars. "We felt that they rose to the occasion," he says.

Evans rates the program as successful in helping "some students really believe that they can be scholars in whatever they decide to study." He says he also has convinced some faculty members that minority students, under the proper circumstances, can do well in very difficult fields.

Evans' only disappointment is the supervising high school teachers' disinterest in some aspects of the program. As originally designed, the program provided opportunities for high school instructors to pursue their own research on campus, borrow laboratory equipment, and request guest lecturers. Evans speculates that because high school instructors have little commitment to fields such as chemistry and physics beyond their teaching responsibilities, they are not interested in research. He hopes to increase their participation in the program through encouragement by principals and notes that the teachers have helped coordinate meetings and student visits.

In organizing student/faculty research activities, Evans advocates placing a scientist in charge. Says Evans, "A scientist can make decisions about students'

work that an administrator would not make because of the potential impact on the program. If a student's attitude gets in the way of the science then the student goes. Last summer I told a student to go home and come back when he was ready to work. When he returned, he did an excellent job."

Evans reports that a recent study found that there were only four blacks with Ph.Ds in liberal arts and sciences in the Detroit area, despite the city's large black population. By proving to students that they can be successful, he hopes to increase their chances for completing graduate work and going on to pursue careers in scholarly research. *P.B.*

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Seattle University/Seattle Preparatory School

Learning to Learn

With an emphasis on "learning how to acquire and use knowledge and skills," faculty members at Seattle University and Seattle Preparatory School have designed a six-year program which students enter after eighth grade and graduate from with bachelor of arts degrees. Called Matteo Ricci College (MRC), the program, begun in 1975, is a "handshake agreement" between the two Jesuit institutions which began as a boys school in 1891 and are now separate corporate entities.

Students complete the first three years of the program, MRC-I, at Seattle Preparatory School. Although all Seattle Prep students are in MRC, administrators decided to retain the secondary school's name because of its reputation and the concerns of alumni.

MRC students enroll in the fourth through sixth years of the program, MRC-II, at Seattle University. MRC-II is an academic division of the university. Its instructors are 36 faculty members drawn from the university's other divisions, usually the College of Arts and Sciences. They have actively participated in the refinement and development of the MRC course content and procedures. During the 1982-83 academic year, 440 students are enrolled in MRC-I and 208 students attend MRC-II courses.

Edwin Weihe, MRC-II dean, considers MRC less experimental in its structure than in its curriculum approach, although he says the six-year program has successfully demonstrated that the average college-bound student is capable of university-level study earlier than the traditional American system allows. MRC's emphasis is on the rigorous process-centered learning that is "critically important to a young person's development" and is not content-oriented, says Weihe, who is also an associate professor of English in the College of Arts and Sciences.

"We are more interested in students' future learning abilities than in their having a fund of information," says Weihe. "We want students to learn how to gather materials and solve problems. We emphasize research strategies, problem-setting, and knowledge-gathering tools."

MRC also reflects the sponsoring institutions' Jesuit orientation. Instructors develop students' abilities to "shape their personal and social futures through responsible choices," according to a recent assessment. The assessment also notes that MRC addresses students' intellectual, emotional, faith, aesthetic, and physical development.

The development of these areas begins with form one, the MRC-I curriculum. In yearly collegios, students develop their skills in writing, reading, listening, and speaking while pursuing an interdisciplinary examination of mythology and Native American culture, major eastern and western civilizations, cross-cultural values and religions, and the history of the Church. Weihe notes that while the curriculum is geared to the capabilities of the average 14- to 16-year-old, the content is very different from that at most high schools.

Form one addresses students' aesthetic/artistic development with a first-year course on aesthetic criteria for evaluating art and the communication capabilities of music, drama, and the visual arts. In their second and third years students enroll in courses in music, drama/dance, ceramics, sculpture, or painting.

Psycho-physical development courses cover such topics as nutrition and diet and the physiology of exercise and include electives in tennis, swimming, gymnastics, and soccer. Additional form one requirements include algebra, geometry, and trigonometry; foreign language; and biology, chemistry, and physics.

The interdisciplinary, sequential nature of form one continues in year four, which marks students' transfer to Seattle University. At the heart of form two are the specially-designed MRC humanities courses which cover such topics as social institutions and systems, Western cultural traditions, and the development of students as "mature and authentic religious" people.

Fourth-year students enroll in three electives and six MRC courses, including Composition: Language and Thought, Modes of Inquiry, and Western Cultural Traditions. Modes of Reasoning, for example, provides skills in informal logic, thinking, and communication. Upon completion of their fourth year in MRC, students receive their high school diploma from Seattle Preparatory School and have earned 45 quarter credits in university-level work.

In both their fifth and sixth years the undergraduates complete three MRC courses and six electives. Fifth year MRC humanities courses deal with students' understanding of their relation to personal, community, and crosscultural experiences and traditions. MRC seminars in students' final year attempt to integrate previous knowledge and skills in examinations of contemporary issues.

MRC students choose their electives from courses offered by the university's other divisions. Although students are considered to be majoring in MRC, they may also complete requirements for a second degree.

MRC's process-centered learning requires a special type of instructor, says Weihe. They must have a sensitivity to young people's development and be "interested in teaching students rather than the subject," he says. "The students are the subject." In addition, Weihe finds that MRC-II faculty members must also be able to handle a group of students who have been together for three

years. "These students have no inhibitions," he says. "As a consequence, a teacher cannot take advantage of the peer pressure that often leads students to pretend that they are more mature than they really are. A faculty member walks into an MRC classroom for the first time and finds everyone talking with one another."

The positive sides to students' camaraderie are little shyness in expressing their thoughts and opinions and the development of a caring, supportive community, says Weihe. He overcomes the negative aspects by using faculty members who command respect and can constructively "channel the energy and potential anarchy."

Weihe reports that the longer students are in MRC the more apt they are to positively evaluate the program. He says sixth-year students are almost fanatical in their support. Only 30 percent of the students complete all six years. Weihe lists families' relocation, tuition costs, interest in other programs, and a desire to attend college outside Seattle or to meet new people as causes for the attrition. He notes that the biggest drop in students, 38 percent, occurs between the fourth and fifth years when many students decide to attend another college. He says that colleges do accept the university credits earned by students in their fourth year, although he must usually send detailed information about MRC in order to verify MRC-II's status as college-level work.

Weihe says the six-year model is especially well-suited to other private high schools and colleges. He traces their reluctance to such programs to the lack of advantages in such arrangements. "It's not in their self-interests to cooperate," he says.

Weihe believes the greatest potential for the six-year model is in small towns which have two or three high schools and a community college. He speculates that a three/three program, which is similar to MRC's and leads to a bachelor of arts degree, could save money, increase flexibility in the curriculum, and keep more students in the community. *P.B.*

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Georgetown University

Teaching Teachers, Teaching Students

The numerous programs for high school teachers and students sponsored and directed by Georgetown University stem from the college's Jesuit philosophy that a well-rounded education should include the constructive application of the skills and awareness required to take an active role in society, says Felix Toledo, director of the Educational Community Involvement Program. Two particularly successful projects Toledo cites include one that brings writing to the high schools and one that brings bright high school seniors to the university.

In 1977, when the average Standardized Achievement Test score in Washington, D.C. dropped to 323, James Slevin, director of the writing center, began talking with many district high school teachers about their needs and ideas for improving students' writing skills. As a result, the writing center now sends tutors into the community schools, offers intensive seminars to teachers and administrators interested in improving their school's instruction of writing, and works with Georgetown faculty members and graduate teaching assistants to develop high school-level teaching materials.

In 1981 the center received a three-year National Endowment for the Humanities grant to operate a graduate credit program for university and area high school teachers interested in learning how to use writing to teach humanities and social science disciplines. The grant also allows wider distribution of curricular materials developed by the teachers and of *Critical Literacy*, a journal offering practical suggestions about teaching and writing.

The 35 participants choose one of four workshops that are coordinated by a Georgetown professor and a high school teacher. The workshops are American Fiction, Writing on Writing, Teaching Values in the Classroom, and Practical Approaches to Teaching Literature. The workshops assume that writing is a way of learning about a discipline and examine how learning occurs differently within disciplines and how writing can sharpen a student's critical awareness of these differences, says Slevin.

In the spring semester each teacher develops a writing and reading assignment sequence, which they share with each other and experiment with in the classroom. The three-to-nine week sequences break down into recommendations for daily classes and provide discussion questions, in-class and take-home writing assignments, and advice on how to use classroom time. Topics for the reading and writing assignments range in the social sciences from current events to traditional study of the civil war, and in English classes from journalism to ancient literature, says Slevin.

Slevin recruits teachers from all 12 area high schools. "We try to select four schools each year on the basis of geographical diversity," Slevin says. The school principals help select teachers for participation in the program, and half are chosen from the English department. They are all experienced in teaching writing in their disciplines and are interested in the theory behind their disciplines and the connections between writing, critical reading and learning, says Slevin, who notes that he has no problems recruiting participants. He recruits the five or six participating Georgetown faculty members through a two-week seminar entitled Approaches to Teaching Writing.

The program participants report that the interaction with the other teachers is very helpful; it raises their morale to see that others with similar problems find solutions. "The essential measurement of success is if the teachers feel more excited about their teaching, if they are more committed to assigning writing than they were, and if they feel more confident in how to respond to students' writing," Slevin says.

Slevin advocates meeting during the academic year because "we are instantly able to follow up on what we're doing and catch mistakes." When developing the program he benefited from taking plenty of time to talk to the teachers. To remain a secure institution on campus "get some funds and a home you can call your own

should there be political problems along the way," says Slevin, who enjoys the security of the administration's strong endorsement.

High School Students in College Classes

To help high school students make the transition from high school to college, Georgetown's Educational Community Involvement Program sponsors the Academic Enrichment Program, begun in 1978 to enable approximately 20 local public and private high school students to take free undergraduate courses for college credit. To be selected, students must have high grades and test scores. High school counselors screen applicants, and the college accepts approximately half of the applicants.

The students take the college courses in addition to their normal high school course load; most participants are seniors who have few remaining requirements. They may take one course their first semester and two during the second if they received good evaluations. They choose from 25 to 30 freshmen and sophomore courses that do not have prerequisites. The most popular courses are in computers, poetry, drama, and freshman English.

The program allows for students "to go through a limited course load from a very demanding university and get a feel for what college studies are like—the reading requirements, level of discussion, the limited discipline and the social atmosphere," Toledo says. The students can also begin to explore their career interests, Toledo says. He finds that the high school students work harder and are more interested in their courses than the average college student. "They motivate the other students, and professors ask to have them in their courses," says Toledo.

Administrators interested in starting a similar program should "plan the program with the school system itself from the beginning stages so the program operates as a result of a joint effort," says Toledo. "The school system should not be presented with a finished blue print that they can take or leave." One small problem Toledo has encountered in administering the program is that "the school teachers are very jealous of their top students—they need them as role models and they grow attached to them." It is also important to develop the guidance counselors' interest in the program and make them aware of the program's entrance requirements, Toledo says.

The Upward Bound Program, also part of the Educational Community Involvement Program, is a federally-funded program for low income, underachieving high school students who wish to continue their education after high school. Administrators designed the program to develop the students' academic skills, self-confidence and motivation. Twice a week during the school year and during a six-week summer program, 105 students study primarily reading and composition, and some mathematics and science classes. Students also receive counseling for academic, personal, college and career planning and may participate in cultural and recreational activities. Students stay with the program through high school, and 85 to 90 percent then enroll in college or vocational-technical training schools.

The survival and welfare of all these programs depends on the college administration, Toledo says. "The most important requirement is that the university is supportive—it makes all the difference. Georgetown is 100 percent behind these programs," Toledo says. Slevin adds, "I don't think any university will need to be persuaded to do something like these programs—most urban areas need this kind of help and the universities just need to know it will work." *T.A.*

For more information, contact Felix Toledo, Director, Educational Community Involvement Program, P.O. Box 966, Hoya Station, Washington, D.C. 20057, 202/625-4210 or James Slevin, Associate Professor of English, Georgetown University, Washington, D.C. 20057. 202/625-4220.

Brooklyn College of the City University of New York

Next Door Neighbors

Instructors at Midwood High School and Brooklyn College of the City University of New York are literally crossing the street in a new program aimed at further developing cooperative activities between the two schools. Located adjacent to the campus, Midwood provides a unique opportunity to test activities which may be later applied to the five other high schools participating in the college's Six-School Collaborative Program and possibly other schools, says Philip Groisser, director of college/high school relationships and professor in the School of Education.

The Six-School Collaborative Program began in spring 1982 as a joint activity of Brooklyn College and the high school division of the city board of education. "As a public institution, we felt an obligation to these schools," says Alden Sayres, a professor of physics who is coordinating a planning committee on the cooperative activities. "We share common problems and hopes for the success of these students."

Activities are still in the planning stages for the six-school collaboration, reports Sayres. Rather than adapting a "grab bag of programs," he would like to pursue a thematic approach that addresses the common concern for students' lack of technological understanding. He suggests that faculty members could design courses which build students' skills in science and mathematics in the context of each high school's current specialization, such as communications at Edward R. Murrow High School.

As has happened at the other five high schools, Midwood High School teachers have involved college faculty members in their activities on a random basis for a number of years. "Now what we are trying to do," says Groisser, "is to institutionalize these contacts but not fossilize them. We feel we should get to know our counterparts on the other side of the street."

Groisser began this process in fall 1982 by arranging for Midwood department heads to meet with chairpersons and one or two faculty members from the corresponding college departments. For example, the head of the high school science department met on different occasions with chairpersons from the de-

partments of chemistry, biology, geology, and physical education. The high school representatives began the discussions by summarizing their programs and goals. Armed with this information, the faculty members were able to determine how best to assist the high school.

"I chose this method over mass meetings or correspondence because it is important when establishing relations between institutions for people to talk with one another first-hand," says Groisser. "This makes the relationship much stronger and more meaningful."

Several common goals came out of the meetings. Faculty members from a variety of departments are arranging for qualified high school students to use the college library and, on a space available basis, their laboratories. Other chairpersons have organized reviews of high school courses. They also are allowing students to visit their classrooms and are compiling lists of faculty speakers.

Cooperative science activities will include use and tours of the laboratories and donations of surplus equipment to the high school. Groisser expects that faculty members will form an advisory committee to review the science courses and textbooks, and graduate students will assist with student research projects.

The theater department is allowing high school students to attend rehearsals and visit backstage for a first-hand look at sets, the lighting board, and the scenery and painting shop. A graduate student may also direct a Midwood play as a thesis project. Similarly, graduate students in the Preparatory Center for the Performing Arts will provide special training to small groups of students. Groisser also anticipates arranging joint band and orchestra rehearsals and performances.

Faculty members in the classics department will help high school teachers prepare a Latin course for average students. In addition, staff members at the Humanities Institute, which coordinates a lecture series at the college, are sending program announcements to all high school principals and department heads. Further outreach to teachers includes history department seminars on microcomputer use in research.

College Experience Program

Many of these activities will play a central role in the College Experience Program (CEP), which is being developed by Midwood High and Brooklyn College instructors. CEP's goal, according to Groisser, will be to help students develop their talents in the humanities, social sciences, and the performing arts while becoming better prepared for college. Admission requirements include at least grade level reading skills, an excellent attendance record, recommendations by past instructors, and interest in humanities, social sciences and/or the performing arts.

High school teachers will use a daily two-hour time block to offer a variety of interdisciplinary courses in social studies and communication and fine arts. Juniors will choose one of these areas as their special focus and concentrate on building skills in that area. For example, a student interested in communications could pursue his or her interest in journalism or creative writing.

In addition to helping design the CEP curriculum, Brooklyn College faculty members will also lecture in the courses. Students also will be able to take advantage of such college resources as the library and music conservatory, and college administrators will allow qualified seniors to enroll in Brooklyn College courses. Tenth-grade activities will begin in fall 1983 with eleventh and twelfth grade programs being added in succeeding years.

"By applying our resources in this direction, we are helping students gain a better understanding of what college is all about, particularly the college across the street," says Groisser.

Groisser is pleased with the response of both high school and college instructors to the joint activities. He says the meetings have helped break down the stereotypes each group holds about the other and given each a new perspective on its own planning and development.

In organizing similar programs, Groisser advises setting up an advisory committee who can recommend whom to contact on campus for assistance on curriculum and other concerns. He emphasizes that personal relationships are an important facet of collaborative activities and advocates concentrating on concrete goals. Sayres recommends that administrators begin with small ambitions in a specific area and build up to larger cooperative programs. He cautions that financial and logistical considerations, such as transportation, must be taken into account at all stages of the collaborative activities.

Groisser says an important facet in what he calls the program's "emerging success" is the enthusiastic support of both the college president and Midwood's principal. "These activities are part of a dream they have had for several years," he says, "and they are excited to see the plan moving toward fruition." *P.B.*

For more information, contact: Philip Groisser, Professor, School of Education, Brooklyn College, Bedford Avenue and Avenue H, Brooklyn, NY 11210. 212/780-4127.

Additional Programs

California Council for the Humanities

Humanists in the Schools—In an effort to "turn high school students on to the humanities," the California Council for the Humanities (CCH) helps place humanities scholars in high schools for three-to-six month residencies, according to Ann Pescatello, special projects officer. The program targets the average student who comprises 90 percent of the student population and who may or may not go on to college. Humanists-in-the-Schools (HIS) "creates an awareness of the central importance to their lives of the concepts and values of the humanities," says Pescatello, who is also the senior research associate for the Center for South and Southeast Asia Studies at the University of California, Berkeley, and director of the Council on Intercultural and Comparative Studies.

CCH supports the program with challenge-match funds to school districts. Begun in 1979, HIS projects have ranged from rural area schools to large inner city school districts. Recognizing the differences in these schools, CCH places few restrictions on their activities. Stipulations include that scholars must have Ph.D.s or be Ph.D. candidates in history, languages, philosophy, literature, or history or criticism of the arts. The program must be implemented by the scholars and teachers and be directed at the average student and also the community, a requirement stipulated by CCH's status as a state affiliate of the National Endowment for the Humanities.

Pescatello lists teaching, community outreach, and field trips as typical activities. School districts assign one scholar to each participating high school. Scholars work with a core group of teachers, usually consisting of four teachers representing the social sciences; foreign languages; English or American language or literature; and science, mathematics, or the fine or vocational arts.

Scholars are directly involved with the core teachers' classes and provide new insights on class topics. For example, one scholar discussed history and culture in the foreign language classes. Scholars also organize field trips to art exhibits, museums, and ethnic communities. They present pre-trip lectures, design study guides, accompany the students and teacher, and provide follow-up discussions. Many also supervise independent study projects and lecture in other classes.

An important aspect of HIS is the scholar's role as a resource person, says Pescatello. Teachers select scholars who complement their expertise. The scholars help develop permanent materials, such as videotaped lectures or museum study guides and establish contacts with museums, newspapers, libraries, and universities—a task for which teachers have little time, says Pescatello.

Scholars involve the community by organizing film festivals and discussion groups. Some have produced films on the area's local history. Parents also accompany students on field trips or independent study projects.

In developing similar activities, Pescatello emphasizes the importance of employing humanities scholars, rather than education specialists. "The best way to promote humanities is to have people with expertise in the disciplines," she says. She suggests that humanities departments could establish HIS teaching assistantships, an idea she is currently proposing to all doctoral-granting humanities departments in the state.

Pescatello is proud of HIS' effect on certain students. She characterizes them as good students who could do better but who are uncertain about their futures and often swayed by peer pressure. Says Pescatello, "This program has helped them realize what they want to do with their lives." *P.B.*

For more information, contact: Ann M. Pescatello, Special Projects Officer, California Council for the Humanities, 312 Sutter Street, Suite 601, San Francisco, CA 94108. 415/391-1474.

Connecticut State Universities

Skills for Success—Students are gaining new perspectives on college preparation from a pamphlet prepared by the Connecticut State College Committee to Define Freshman Competencies. The pamphlet encourages students to develop certain competencies in mathematics, reading, and writing, in addition to completing the high school courses required by the colleges. "We're saying that these are the skills you need for success in college," says Joseph R. Dunn, director of research at Central Connecticut State University (CCSU). "It is not enough to meet the technical requirements."

The four colleges represented on the committee bring a tradition of teacher education to their involvement. For example, CCSU began in 1849 as a two-year teacher training school. The other schools are Eastern Connecticut State University, Southern Connecticut State University, and Western Connecticut State University. In March 1983 the state legislature changed the name of each of the colleges to university to reflect its expanded interests.

The commitment to teacher education, as well as concern over the growing number of students needing remedial coursework, influenced the committee's approach. They shared drafts of the recommendations with high school teachers and administrators, admission officers, department chairpersons, and representatives of disciplinary organizations and the state education department. "We carefully studied the recommendations," says Dunn. "We wanted people to respond positively to the pamphlet, and we were not trying to place the blame on anyone."

The brochure lists the high school preparation required by the universities and expands on the competencies needed for success. It notes that students not meeting these competencies, as measured by freshman placement tests, "will spend valuable (and expensive!) college time acquiring what they could have acquired in high school." For example, the reading section states that students should be able "to use tables of contents and indexes, to identify main ideas and to summarize, analyze and interpret material read."

Dunn is pleased with response to the pamphlet. The committee distributed it to guidance counselors, principals, and public libraries. Guidance counselors report that it adds credibility to what they have always told students.

"Our activities demonstrate our willingness to work with secondary schools and provide a service," says Dunn. "Students are learning about the competencies necessary for success at any college." *P.B.*

For more information, contact: Joseph R. Dunn, Director of Research, Central Connecticut State University, 1615 Stanley St., New Britain, CT 06050. 203/827-7305.

Mt. Holyoke College

Making Mathematics Useful to High School Girls—Out of a concern for the underrepresentation of women in fields involving mathematics, such as business, law, and architecture, and a desire to implement the findings of research in cognitive learning, administrators at Mt. Holyoke College, a women's school, began a residential summer mathematics program for high school girls in 1982. SummerMath seeks to develop the students interest and ability in mathematics courses, because "students making decisions about courses are actually making decisions about careers," says Jere Confrey, assistant professor of Mathematics and director of SummerMath. "We try to make them aware of this and give them the encouragement and competence to pursue math.

"The program is more of a venture than a lot of summer programs," says Confrey. In a typical mathematics classroom students are fairly passive, and some students survive only by memorizing rules, Confrey believes. "What concerns us most is that the memorization leads to lack of a sense of control," she says. "That's why students feel so anxious when doing math—they don't have a sense of personal accomplishments." In cognitive process learning students are encouraged to examine their own problem solving techniques and construct mathematical ideas for themselves; the process is more important than the answer. "We take errors seriously—we find the extent of the misconception and use that to construct alternative conceptions," Confrey says.

The 80 participants, who come from the United States and abroad, take three courses which meet five days a week. Topics covered in Fundamental Mathematics Concepts include algebra, geometry, and trigonometry, and students learn the mathematical concepts of patterns, unit, number, ratio, and function. In Computers students learn Logo language to program Apple II computers. Through graphics and mathematical games they learn the computer concepts of modes, variables, procedures, and recursion. In Laboratory Activities students discover the importance of mathematics to geography, astronomy, statistics, biology, and environmental science.

In addition to the straight academics, students participate in arts and crafts classes in order to broaden their understanding of mathematics. Students learn the theories of patterns, unit, spatial awareness, structure, and symmetries through quilting squares, pounding out leaf designs, and making murals, geodesic domes, and kites.

The program is a success, according to the students and Confrey, who reports that two students' mathematics Standardized Achievement Test scores improved 100 points. Confrey found that advertisements in the local newspaper and the *New York Times* and brochures distributed to high schools across the country were effective in recruiting students. Two of the most significant challenges the staff face are teaching the students to think and changing their initial expectations of what mathematics entails and what mathematics instructors are like, says Confrey. She advises anyone interested in developing a similar program "to have a well defined philosophy and a solid base in the work in cognitive psychology and educational research." *T.A.*

For additional information, contact Jere Confrey, Director of SummerMath, Mt. Holyoke College, South Hadley, MA 01075. 413/538-2608.

Pennsylvania State University

Staff Development in Rural Schools—Since 1979 Pennsylvania State University, a land grant institution, has met some of its responsibilities to the state by supporting the Pennsylvania State/Keystone Central School District Teacher Corps Project, says Cecil Trueblood, professor of education and director of the project. The project enlists School of Education faculty members and school district administrators and teachers in the design and implementation of staff development programs for rural elementary and secondary schools. Pennsylvania has the largest rural population of any state in the United States, so this project is particularly important, says Trueblood. Rural schools need staff development because of "low turnover of the teaching staff, a tendency of rural teachers not to pursue graduate study, and the physical isolation from institutions of higher education," says Trueblood.

Education department faculty members have trained two teams of teachers, the school principal, a central administrator and university faculty members to help implement faculty development projects. These teams have trained two other teams. Each team goes to one school and works with individual teachers with their pedagogical problems, provides leadership training to administrators, and develops the teachers' and administrators' skills for evaluating their projects. With the help of a Corps team, one teacher developed a perceptual motor program to develop kindergarteners' large and small muscle coordination, particularly for reading, and gives workshops on the program to other teachers. A high school instructor designed an individualized approach to teaching mathematics skills, and another composed an oral history of the community which is used in history classes.

The close collaboration between university and school members is crucial to the program's success, says Trueblood. The teams operate by consensus and "collaborative planning is probably the key to why consensus works," Trueblood says. Collaborative planning builds trust and mutual respect and enables the university and school members to give and receive feedback, which helps each meet their primary goals. The university can also better implement changes in the schools because "we have insiders pushing for changes," says Trueblood, and administrators are more willing to support the teachers if they have helped develop the projects.

The schools benefit on a long term basis from staff development projects that include substantial and immediate evaluation by showing the projects' results to the government, which traditionally has not been supportive of staff development because they could not see the immediate impact, according to Trueblood. "At the end of each program we can give feedback to teachers and administrators on what has been achieved," he says.

As part of the Corps project the university also developed a new masters degree program, in which faculty members offer eight, three-credit courses at the rural schools to teachers. "A special feature of the program is that the master paper must work on a curriculum project that is relevant to the teacher's classroom," says Trueblood.

The Corps project "will make change in the classroom," Trueblood says. "The individual staff approach is the way to get teachers to make changes. Once the community and school boards see the benefits they will increase their interest in staff development. But to succeed Trueblood says, "you have to build a good relationship between the rural school sites and the central administration." Always deal with the teachers and administrators on an individual basis and introduce the aspect of evaluation of staff development projects and teaching "very carefully," says Trueblood. "Rural teachers are wary of evaluation from outsiders." *T.A.*

For more information, contact Cecil Trueblood, Professor of Education and Director of the Teacher Corps Project, Pennsylvania State University, Chambers Building, University Park, PA 16802. 814/865-2430.

University of Utah

Revamping Admissions Requirements—Freshmen entering the University of Utah in 1987 will be better prepared to handle college-level work thanks to a new set of admissions requirements, according to Franklin L. McKean, dean of student affairs and services. The new requirements, which include 16 units in English, history, mathematics, science, and foreign language, will replace the university's open admissions policy which allows any Utah high school graduate who has completed one year of algebra and four years of English to enroll.

The process of changing the requirements began several years ago. According to McKean, administrators were distressed by the decline in area test scores, which mirrored national trends; the costs of offering remedial courses to nearly a third of the freshman class, which was growing steadily each year; and the 90 percent attrition rate for freshmen enrolled in remedial courses. Faculty committees examined the problem and recommended various solutions. When their proposals generated little support, the president suggested changing the high school pattern of students interested in attending the university.

The president and a group of administrators prepared a list of high school coursework which they thought would improve students' chances for success at the university. In February 1982 they announced their recommendations in a Sunday edition of the *Salt Lake City Tribune*. Titled An Open Letter to High School Students and their Parents, the advertisement described each recommendation and its rationale and carried 22 signatures, including those of the president and the deans of the university's colleges and divisions.

Before the advertisement's publication, McKean sent a copy to high school counselors and principals in the most populous area of the state and called people he had worked with during his more than 20 years at the university. "We wanted everyone to know what was coming," said McKean, who solicited each person's comments.

In the months following the advertisement's appearance, staff members shaped the recommendations into a formal set of requirements. McKean invited principals, counselors, and district superintendents to visit the campus to discuss the requirements. The final version received approval from the University Senate and the State Board of Regents.

McKean views communication with the high school representatives as an important part of the year-long process. He admits that some people interpreted the university's actions as interference, and he stresses the importance of recognizing the secondary schools' prerogatives. "Our intent," says McKean, "was not to say that every student should follow this new program. We wanted to advise those students who were coming to the university that these were the courses that they should take."

To help high schools prepare for student response to the new requirements, more than 40 percent of the state's graduates enroll at the university, the Division of Continuing Education will offer tuition-free courses so that science and mathematics instructors can improve their skills; students must now complete two years of mathematics beyond algebra and two years of biological and/or physical science.

Says McKean, "We are already having an effect on education in Utah. Enrollment in mathematics, languages, and other solid subjects has significantly increased." *P.B.*

For more information, contact: Franklin L. McKean, Dean of Student Affairs and Services, The University of Utah, 210 Park Building, Salt Lake City, UT 84112. 801/581-7793.

University of Washington

Increasing Minority Representation in Engineering—Minority students at five Seattle high schools are learning about scientific and technical careers in a program sponsored by the University of Washington College of Engineering. "We want them to know about opportunities in these fields and understand the background which they require," says Patricia MacGowan, director of Pre-College Programs.

Nearly 100 ninth and tenth grade students are participating in the MESA (Mathematics, Engineering, Science Achievement) Program during the 1982–83 school year. Funded in 1982 by the Hewlett Foundation, MESA addresses the underrepresentation of minorities in engineering and is the successor of a similar three-year-old program. MacGowan and high school counselors and teachers select students on the basis of their interest in science and mathematics; students must be in the college-track program. Administrators designed the program for black, Hispanic, and Native American students; because Asians are not underrepresented in engineering they are not included in MESA.

The program's core is an elective science course for tenth graders. Taught by a high school teacher who serves as the MESA coordinator for his or her school, the course examines the ways in which engineers use mathematics and science in problem solving. University of Washington faculty members describe engineering problems and challenge students to find the solutions. In one project students estimated the amount of insulation needed in their homes and determined whether the reduction in their heating bills justified withdrawing the insulation costs from a savings account. Another project compared levels of acid rain throughout the Seattle area.

MacGowan acknowledges that it was difficult to gain district approval for the course. With support from the principals, she documented the underrepresentation of minorities in science and mathematics classes and identified students needing assistance.

Additional MESA activities include field trips to local industries. Participants also spend one school day on campus with an engineering student and another day with a local engineer. "Students can't learn what engineers do by staying in the classroom," says MacGowan.

During summer 1983 40 MESA students will participate in a free six-week course. They will earn credit for attending daily sessions on mathematics, science, and computers. MacGowan says students will proceed at their own pace in the individualized skill-building program.

MacGowan believes these activities help minority students gain a better understanding of engineering careers. She also organizes engineering student teams, which visit junior high schools to stress the importance of science and mathematics courses. MacGowan's next goal is reaching fifth and sixth grade students. "Choices at this age can make a difference later on," says MacGowan. "Without advanced mathematics and science students can't keep up with the college engineering courses." *P.B.*

For more information, contact: Patricia MacGowan, Director, Pre-College Programs, College of Engineering, University of Washington, Seattle, WA 98195. 206/543-2649.

University of Wisconsin-Stevens Point

Literacy—A Cross-Discipline Endeavor—Faculty members established the Center for Literacy at the University of Wisconsin-Stevens Point in 1981 to upgrade the writing and mathematical skills of high school students, make the high schools more aware of the university's standards, and improve the skills of the university students, says Donald Pattow, director of the center.

Center faculty members have visited teachers and administrators at 40 schools to help them with curricular and classroom problems. Although center staff members may work with the school on one particular problem, they generally offer workshops on any number of the following topics: writing across the curriculum, mathematics across the curriculum, teaching students how to evaluate their own and others' writing, establishing grading criteria for writing in all disciplines, literacy for the 21st century, and the most popular, diagnosing student writing problems and assignment-making for writing in all disciplines. The center staff usually consult with the schools for two weeks before and after a two-day site visit.

In the mathematics sessions, center staff show teachers how to integrate mathematical problems into all classes, such as working out their own examination percentages. "We give the teachers strategies for presenting a positive attitude about math to their students," says Pattow. "Teachers generally have a negative image of math so we try to change their attitude or at least get them to be less hostile." In writing across the curriculum sessions, Pattow tells teachers to demonstrate the importance of writing to their students, to consistently approach writing as a process, and to treat writing for learning as distinct from writing for informing. He advocates regularly interrupting the writing process for evaluation and encourages teachers to show their students how to evaluate each other's work.

The center staff want to reduce departmentalization in the high schools because this keeps students from having the skills they learn in one course or subject reinforced in others, says Pattow. "Our studies show that students forget three-quarters of what they learned in freshmen English," he says. "We're primarily concerned with the problem of transference—how do you actually ensure that the skills learned in a math class will be transformed to a non-math class?" Helping the high school students with basic skills should directly benefit the university, as these students will be better prepared when they enter the university, Pattow predicts. The program also builds the university's reputation among the high school teachers, administrators, students and parents, says Pattow.

The center continues its work with students in the university to develop and reinforce their literacy skills. Every incoming student provides a writing sample that places them in an introductory composition class, all of which use a common syllabus and similar evaluation criteria. Juniors and seniors must take six hours of writing emphasis courses, offered in every discipline and taught by faculty members trained to teach writing.

The services to the high schools are popular because they allow the school administrators to counter accusations that they are not teaching students to write, according to Pattow. When working with high schools Pattow says "you have to begin with where the school is—you can't go in with a preconceived notion of what you're going to do or accomplish." He also warns that "you must treat the teachers as professionals—that's what they are." *T.A.*

For more information, contact Donald Pattow, Director, Center for Literacy, University of Wisconsin-Stevens Point, Stevens Point, WI 54481. 715/346-4758.

Resources

American Association for Higher Education. *Current Issues in Higher Education, Number 1*, "High School/College Partnerships," Washington, D.C.: AAHE, 1981.

This publication includes, among others, articles from AAHE's 1981 conference "Promising Frontiers: Five Partnerships for Higher Education. Ernest Boyer describes programs which demonstrate five important principles of successful collaboration and concludes that schools must acknowledge and identify a common agenda for preparing students for college, adequately reward participants, and focus on "activities, not machinery." Mike O'Keefe describes 12 model programs, and Gale Crouse describes the University of South Dakota Extended Teacher Institute. Janet Brown discusses the City University of New York and the New York City Board of Education's efforts to improve reading and writing skills of high school students and freshmen in Queens College.

The Association of American Colleges (AAC), 1818 R Street, NW, Washington, D.C. 20009. 202/387-3760. Mark Curtis, President.

In spring 1983 AAC begins a public information campaign to promote liberal education among high school students, parents, and guidance counselors. The campaign, entitled "Get a Liberal Education—It's the Course for Life," will publicize the endorsement of liberal education by politicians, business men and women, and entertainment celebrities who received a liberal arts degree. Media events will include a New York press luncheon, public service announcements, press kits, and news releases. AAC will send high school counselors kits containing an explanation of the campaign, posters, public service advertisements, and an article for reproduction in the school paper. AAC will mail member presidents general information on how they can promote liberal education.

The Carnegie Foundation for the Advancement of Teaching. *School and College Partnerships in Education*. Princeton, NJ: (CF), 1983.

Author Gene Maeroff discusses five categories of college-high school collaborative programs: those that set standards for college entrance, accelerate academically gifted high school students, prepare teachers, support minorities, and experiment with the transition between high school and college. Maeroff concludes that in successful programs the high schools and colleges recognize they have a common problem, the school teachers and administrators are treated as full partners, the focus is on a specific problem, all participants understand the program's rewards and objectives, and more action than talk occurs.

Caruso, Joseph. "Collaboration of School, College and Community: A Bridge to Progress." *Educational Leadership* 7 (April 1981): 558–562.

Parents, teachers and professors traditionally blame each other for "failure in the schools, but a federally funded, nationwide project, The Teachers Corps, which helps train teachers, has brought these divergent groups together, says Caruso. After interviewing participants and observing project activities, Caruso discovered several causes for the recurring problems with collaboration: colleges and school representatives distrust each other, are too turf conscious, feel class differences between the professions, are uncomfortable with the new roles they must adopt for collaborative projects, and are stubborn in their beliefs of "what's best" for the students.

Clinton, Charles. "Local Success and Federal Failure: A Study of Community Development and Educational Change in the Rural South." Massachusetts: ABT Books, 1979.

Clinton, an ethnographer, lived in a rural southern town and studied the development of the town, focusing on its educational initiatives stemming from participation in the federally-funded Experimental Schools Program. In the first part of the book Clinton discusses how the town's culture affects political decision making. In part two Clinton shows what educational change the community supported and why, and how they manipulated proposed recommendations from agencies outside the community. The book is recommended for administrators and faculty members in higher education interested in working with rural schools.

The College Board, Office of Academic Affairs, 888 Seventh Avenue, New York, NY 10019. 212/582-6210. Adrienne Bailey. Vice President for Academic Affairs.

In 1980 the College Board began its ten-year Educational EQuality Project in response to the decline in college admissions test scores. The project's goal is to improve the quality of secondary education and ensure that all students have an equal opportunity for a post-secondary education. The project seeks to help educators agree on the courses and skills students need for college success. Their recommendations include skills in reading, writing, speaking, listening, mathematics, reasoning, and studying and courses covering English, foreign or a second language, history/social studies, mathematics, science, and visual and performing arts.

Council for the Advancement and Support of Education (CASE), Mindpower Campaign, Suite 400, 11 Dupont Circle, NW, Washington, D.C. 20036. 202/328-5900. Charles Helmken, Director.

The goal of phase three of CASE's Mindpower Campaign, entitled "Make the Mindpower Connection," is to encourage members of higher education to recognize the importance of secondary schools' quality to that of higher education. The campaign staff is suggesting to the colleges that they develop collaborative projects with the schools and find ways to honor superior teaching in the secondary schools. Kits are available upon request from CASE that contain information on how to start and run a collaborative program, based on, among others, the Carnegie Foundation for the Advancement of Teaching research. Another goal of the campaign is to identify existing programs and circulate these programs' ideas and recommendations.

Friedlander, Jack. "Working With High Schools to Strengthen Community College Programs." *Community College Review* 1 (Summer 1982): 9–17.

Friedlander discusses the need to better prepare high school students for college, strengthen the communication between high schools and colleges about their programs, heighten high school students interest in liberal education, and increase the number of academically gifted students choosing community colleges. Some of the damage resulting from the insufficient interaction between schools and colleges, Friedlander says, includes colleges having to act as remedial high schools, and high school and college programs lacking continuity and sometimes duplicating each other.

Lopez, Antonio, Jr. "Computer Literacy for Teachers: High School and University Cooperation." *Educational Technology* 6 (June 1981): 15–18.

Computers' costs are decreasing and classroom computer texts are increasing, but teachers' computer literacy is still poor, says Lopez. Being computer literate means understanding "the capabilities, limitations, applications, and implications of the computer," according to Lopez. He describes the importance of computer literacy for teachers and collaborative efforts between colleges and schools to help teachers become computer literate.

National Endowment for the Humanities, Division of Education Programs, 806 15th Street, NW, Washington, D.C. 20506. 202/724-0373. Richard Ekman, Director.

The National Endowment for the Humanities' Division of Education Programs funds joint efforts by higher education and elementary and secondary schools to improve the teaching of the humanities. Examples of activities funded by the Collaborative Projects section include creating new humanities courses in high schools and developing curricular materials. Funded programs are academically rigorous and replicable by other institutions. Staff members of secondary and elementary schools and colleges may apply.

Southern Regional Education Board (SREB), 1340 Spring Street, NW, Atlanta, GA 30309. 404/875-9211. Dr. Winfred Godwin, President.

In 1980 the Southern Regional Education Board, governors from 14 southern states and representative from higher education, started the Task Force on Higher Education, staffed by representatives

from higher education and the public schools. The task force's 1981 report "The Need for Quality" makes 25 recommendations on how to improve the coordination and communication between higher education and high schools. Half of the recommendations focus on teacher education, advocating more testing of teachers upon their entrance to programs and supporting continuing education of teachers. The other half deals with curriculum improvements, such as raising requirements for high school graduation and college entrance. Since the report's release the task force has monitored and encouraged the recommendations' implementation, as well as published materials on improving the selection of school principals and examining the role of guidance counselors. The October 1982 issue of their publication *Spotlight* discusses collaborative efforts aimed at bright high school students.

"Special Section: The High School/College Connection." *Change* 1 (January/February 1981): 12–30.

Six articles in this special section of *Change* focus on the importance, problems, and needs of collaborative efforts between high schools and colleges. Gordon Amback discusses collaboration from his viewpoint as commissioner for education for New York state and president of the State University of New York. Terry Sanford discusses the career, goals and ideas of James Conant, a scholar on secondary education. Neil Eurich also discusses Conant and the relevance of the goals he outlined for secondary education in *The American High School Today*. In "Open Access, Open Admissions, Open Warfare," Robert Marshak and Gladys Wurtemburg discuss the problems the City College of New York administrators faced with open enrollment from 1976 to 1979. An interview with Ernest Boyer is also included in this issue, as well as an article by Gene Maeroff.

"Top Educators Push for School-College Links." *Higher Education Daily* 36 (February 23, 1983): 3–5.

This article includes responses from some of the 125 college administrators who participated in a Yale University conference on improving teaching, particularly in the high schools, through college/school collaboration. Participants discuss the tremendous obstacles to collaboration, how to overcome them, and, among others, the psychic benefits of collaboration.

UPDATE: The October 1982 resources section listed an *American Journal of Physics* article titled "Experience with a professionally oriented astronomy laboratory for nonscience majors." We noted that the author, Clarence Annett, has recently taught an astronomy workshop for parents and children. Dr. Annett asked us to report that he continues to welcome correspondence from others developing astronomy courses for nonscience majors and that his new address is 5445 Charlotte St., Kansas City, MO 64110.

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The Forum for Liberal Education is a topic-oriented publication featuring a subject of importance for liberal education in each issue. It does not endorse or evaluate institutional activity. Rather, it describes various ways in which institutions of higher learning address important common concerns. Upcoming issues of the *Forum* will look at honors programs and computer-based learning. **The *Forum* staff is interested in receiving program information from our readers.** If your school is chosen for inclusion in an issue a staff member will interview a contact person at your school and write the article.

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